

REMARKS

By the present amendment, claim 1 has been amended to recite a step of determining a base sequence of the sample of nucleic acid, by connecting sequence-determined portions. Support for this recitation is found in the original application, for example on page 3, line 30.

Also, claim 1 has been amended to replace “most recently” in steps (C) and (D) by “in the most recent base sequence determination step” and by reciting in step (D) that the subsequent peak interval is that of the most recent step (C), claim 2 has been amended to recite that FFR is fast Fourier transform, and claim 3 has been amended to recite that “n” is an integer. Support for these modifications are found in the original claims, and immediately derived from the application as filed.

Claims 1-3 are pending in the present application. Independent claim 1, and claims 2 and 3 dependent directly or indirectly thereon, are directed to a method of determining a base sequence for nucleic acid.

In the Office Action, claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, as not enabled. It is alleged in the Office Action that in claim 1, step (A) defines a “predetermined peak interval” which is not related to any peak interval in the sequencing data but is a “generic parameter,” so that it would require “undue experimentation in finding the right generic peak interval.” It is also alleged that the specification and the claims do not explain how to determine the base sequence of M points in claim 1, so that this would also require undue experimentation.

The rejection is respectfully traversed. The predetermined peak interval is a conventional notion in connection with a standard migration speed in the apparatus. It is submitted that a person of ordinary skill in the art would immediately understand this point from the specification. In

In particular, in the “Description of the Prior Art” section in the specification, it is disclosed that Fourier transformation has been carried out as a pretreatment for waveform shaping in electrophoresis, and a filter function employed in the Fourier transformation is set to remove signals having frequencies shorter than a DNA peak appearance interval (see pages 1-2 of the specification). Thus, the person of the art already knew how to determine a parameter of the Fourier transformation with respect to peak intervals before the present invention. Accordingly, it is clearly within the person of the art’s capability to determine a generic peak interval.

Further, regarding the base sequence determination, it is submitted that a method itself for determining a base sequence has been well known in the art, so that that method can be easily carried out by a person of ordinary skill in the art, based on the reference and guidance in the specification. Also, the M value is defined in claim 1 itself (steps (c) and (d)) and illustrated in the specification (see, e.g., step (6) on page 5 of the specification) to enable that person to fully practice the presently claimed invention.

In view of the above, it is submitted that the rejection for lack of enablement should be withdrawn.

Next, in the Office Action, claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as indefinite. It is alleged in the Office Action that, in claim 1, the term “most recently” lacks antecedent basis, also in claim 1, a step connecting step (C) to other steps is missing, in claim 2, the term “FFT” is unclear, and in claim 3, the term “n” is unclear.

Reconsideration and withdrawal of the rejection is respectfully requested.

First, the term “most recently” in steps (C) and (D) in claim 1 has been made explicit by reciting “in the most recent base sequence determination step”, so that steps (C) and (D) may refer

to the most recent step (B) or step (E) without lack of antecedent basis.

Second, the objection regarding an alleged lack of connection of step (C) in claim 1 is respectfully traversed. The expression “using the subsequent peak interval” in step (D) clearly refers to the subsequent peak interval defined in step (C) which recites “obtaining a subsequent peak interval...). This has been made explicit by reciting in step (D) that the subsequent peak interval is that of the most recent step (C).

Third, claim 2 has been amended to recite that FFR is fast Fourier transform.

Fourth, in claim 3, it has been clarified that “n” is an integer. It is clear from the disclosure in the application that  $2^n$  represents data points, and accordingly, it is immediate that n is an integer.

In view of the above, it is submitted that the rejection for indefiniteness should be withdrawn.

Next, in the Office Action, claims 1-3 are rejected under 35 U.S.C. 101 as directed to non-statutory subject matter. It is alleged in the Office Action that the process lacks an “active step that recites creating the final base sequence for a nucleic acid,” so that the claimed invention is limited to “manipulating data” and does not have a “practical application, i.e., something that is concrete, tangible and useful.”

Claim 1 has been amended as suggested in the Office Action, to recite a step of determining a base sequence of the sample of nucleic acid, by connecting sequence-determined portions, as disclosed in the original application, for example on page 3, line 30. Accordingly, it is submitted that the rejection for non-statutory subject matter should be withdrawn.

In conclusion, the invention as presently claimed is patentable. It is believed that the claims are in allowable condition and a notice to that effect is earnestly requested.

In the event there is, in the Examiner's opinion, any outstanding issue and such issue may be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of the response period. Please charge the fee for such extension and any other fees which may be required to our Deposit Account No. 50-2866.

Respectfully submitted,

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